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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,509	07/26/2001	Cary Lee Bates	ROC920010127US1	6761
7590 12/10/2008 Gero G. McClellan Thomason, Moser & Patterson, L.L.P. Suite 1500 3040 Post Oak Boulevard Houston, TX 77056-6582				
EXAMINER				
KANG, INSUN				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

09/915,509

Applicant(s)

BATES ET AL.

Examiner

INSUN KANG

Art Unit

2193

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 30-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date: \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This action is in response to the RCE filed on 3/29/2006.
2. Claims 30-55 are pending and have been examined.

***Specification***

3. The disclosure is objected to because of the following informalities: the scope of the term “may” used throughout the specification is unclear. A definite term needs to be used.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. Claims 30-55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Per claims 30-55, the scope of “may” is unclear as the term suggests the possibility of either negative or positive result.

Claim 35 recites the limitations “the node” in line 2 and the control flow graph in line 4. There is insufficient antecedent basis for these limitations in the claim. Interpretation, claim 35 depends on claim 34 based on the limitations recited in claims 33-35.

Claim 44 recites the limitations “the node” in line 3 and the control flow graph in line 5. There is insufficient antecedent basis for these limitations in the claim. Interpretation, claim 44 depends on claim 43 based on the limitations recited in claims 42-44.

Claim 53 recites the limitations “the node” in line 3 and the control flow graph in line 5. There is insufficient antecedent basis for these limitations in the claim. Interpretation, claim 53 depends on claim 34 based on the limitations recited in claims 51-53.

***Claim Rejections - 35 USC § 101***

5. Claims 39-47 are non-statutory because they are directed to a “medium” that includes a communication medium (i.e. signals such as electrical, electromagnetic etc) as recited in the instant specification (i.e. 0033). Such medium does not have a physical structure, rather it is the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism per se. Moreover, it does not fit within the definition of the categories of patentable subject matter set forth in § 101. Therefore, the claims are non-statutory. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. § 101. The following link on the World Wide Web is for the United States Patent And Trademark Office (USPTO) policy on 35 U.S.C. § 101. [http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101\\_20051026.pdf](http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf)

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 30-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Borland's**, “Turbo C++, User's Guide,” in view of **Kesselman** et al. (6,678,884), and further in view of Koyama (US 2001/0004766).

**Claim 30**

**Borland** discloses:

displaying, on a display interface, a value of one or more data variables of the program being debugged (*page 224-225; page 27, table; and page 237, fourth paragraph*).

receiving a command to execute the program being debugged (*page 228, first through third paragraphs; and pages 237-241*) in response to receiving the command, executing the program from a first execution point to a second execution point; (*page 224-225; page 27, table; and page 237, fourth paragraph*).

**Borland** did not explicitly state determining, based on the first and second execution points, which data variables may have been modified by the execution of the program.

**Kesselman** demonstrated that it was known at the time of invention to utilize code point reaching variable sets (column 6, line 59 to column 7, line 12). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the debugging system of **Borland** with determined variable sets identifying variables which reach or are affected to a point in code (by executing a portion of code to a breakpoint or stepping through code) as found in **Kesselman's** teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a user with variables and information on variables, which a user expects, regardless of optimizations (**Kesselman**: column 1, lines 54-57). Additionally, this implementation would have been obvious because one of ordinary skill in the art would be motivated to provide a clear and non-confusing display of user-desired information (selected by the users or for the user automatically), or in other words non-tedious set watches (supported by, **Borland**: page 237, "Monitoring your program by setting watches", third paragraph).

Boarland and Kesselman do not explicitly disclose refreshing the value displayed on the display interface only for data variables that may have been modified by the execution of the program from the first execution point to the second execution point. Koyama discloses that it was known at the time of invention to display the updated variables (i.e. 0010; 0045). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the debugging system of Borland with refreshed variable values that are changed as found in Koyama's teaching. This implementation would have been obvious because one of ordinary skill in the art would be motivated to easily grasp the program execution status by displaying the status of variables as taught by Koyama.

Per claim 31:

Borland discloses: wherein the command comprises a step command configured to cause the execution of a statement of the program being debugged present at the first execution point (*Borland: pages 224-225*).

Per claim 32:

Borland and Kesselman disclose: executing the statement (*Borland: pages 224-225*); and determining a set of variables that may have been modified by the execution of the statement (*Kesselman: column 3, lines 25-32*).

Per claim 33:

Borland and Kesselman disclose the command comprises a run command (*Borland: page 27, table*), and wherein the second execution point comprises a breakpoint encountered by the execution of the program from the first execution point (*Borland: page 227-229; and*

**Kesselman:** *column 3, lines 25-34).*

Per claim 34:

Kesselman discloses:

if a node of a control flow graph that contains the first execution point of the program contains a breakpoint positioned after the first execution point, determining a set of variables that may be modified by the execution of each statement of the node from the first execution point to the breakpoint; and executing each statement of the node from the first execution point to the breakpoint. (**Kesselman:** *column 6, line 59 to column 7, line 11).*

Per claim 35:

Kesselman discloses:

if the node does not contain a breakpoint between the first execution point and a last statement of the node, then beginning with a root node, marking each node of the control flow graph which may be exited and reentered during execution of the program from the first execution point(**Kesselman:** *column 3, lines 13-24);*

for each marked node, marking all data variables of the node as variables that may be modified by the execution of the program from the first execution point to the second execution point (**Kesselman:** *column 5, lines 48-49; and*

beginning with the node containing the first execution point, generating a list of unmarked nodes which may be reached during execution of the program from the first execution point (**Kesselman:** *column 6, line 59 to column 7, line 11).*

Per claim 36:

Kesselman discloses:

traversing the control flow graph from the node containing the first execution point of the program to each subsequent node by following program control flow defined by arcs(**Kesselman**: column 2, line 48 to column 3, line 24; and column 6, line 59 to column 7, line 11); adding each encountered node to the list if the encountered node is not marked and is not already in the list(**Kesselman**: column 7, lines 3-11); determining whether the encountered node contains a breakpoint(**Kesselman**: column 6, line 59 to column 7, line 11); and if so, terminating a traversal along a current traversal path (**Kesselman**: column 6, line 59 to column 7, line 11).

Per claim 37.

Kesselman discloses:

propagating, to each unmarked node in the list, a propagated kill set from a preceding unmarked node in the control flow graph, wherein the propagated kill set contains a sum of all data variables associated with all statements of the preceding unmarked node and all propagated kill variables propagated to the preceding unmarked node (**Kesselman**: column 6, line 59 to column 7, line 11).

Per claim 38:

Boarland and Kesselman do not explicitly disclose the debugger interface is displayed on a first computer system, and wherein the program being debugged is executing on a second computer system, and wherein the first and second computer systems are configured to communicate over a network communication channel. Koyama discloses that such a distributed debugger system



was known at the time of invention to debug in a distributed system bridging over plural computers via a network communication channel (i.e. 0049; 0041). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the debugging system of Borland and Kesselman with the debugger interface in Koyama's distributed debugger system. This implementation would have been obvious because one of ordinary skill in the art would be motivated to debug a program in a distributed environment over a network.

Claims 39-47

The limitations of computer readable medium claims 30-38 correspond to the limitations of method claims 30-38 and as such are rejected in the same manner.

Claims 48-55

The limitations of computing device claims 30-38 correspond to the limitations of method claims 30-38 and as such are rejected in the same manner.

***Response to Arguments***

8. Applicant's arguments with respect to claims 30-55 have been considered but are moot in view of the new ground(s) of rejection.
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to INSUN KANG whose telephone number is (571)272-3724. The examiner can normally be reached on M-R 7:30-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lewis A. Bullock, Jr. can be reached on 571-272-3759. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Insun Kang/  
Examiner, Art Unit 2193